

Regional Workforce Needs and Training

The Case of Northeast Minnesota/Northwest Wisconsin

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More than ever before, firms considering a move or expansion are asking regions to prove they have a workforce available with necessary skills. Hard, workforce-related data are crucial to assist firms in making location decisions. This article summarizes surveys conducted in northeast Minnesota and northwest Wisconsin on workforce needs and availability. The purpose of these surveys was to provide local development, government, and planning officials with the information required to do their jobs.

Recent national reports and analyses point to a transformation in the U.S. economy. In the past, American workers with high school degrees could earn a middle class living by working hard in America's factories. High productivity resulted from assembly line techniques and the gains from specialization justified high wages. High-level skills were generally not required.

National studies repeatedly point to workforce abilities, training, and education as major determinants of regional economic development potential. A survey in northeast Minnesota and northwest Wisconsin found that only 25 percent of the respondent firms experience trouble in this regard. Further, the skills required in this region are not particularly high-tech. In contrast to the results and recommendations in the national literature, very few firms reported using public or private education providers in their skill training activities. In fact, a 1998 survey of households in the same region showed a labor force that is overtrained relative to the existing firms' needs. These findings suggest that labor analyses should concentrate on regional delineations and needs.

Global competition, according to these national studies, is now forcing changes within American industries. The assembly line is now controlled by computers, and physical jobs requiring low-level skills are moving to other countries offering lower wages. The unskilled worker is being marginalized in low-paid occupations. High-order skills (e.g., technical and computer skills) are now required to earn a sufficient income.

American industry has responded, in part, by introducing high-performance work organization practices that require management to delegate more authority to worker-teams and that require higher skills of workers. High performance means the adoption of new technology and the hiring of skilled workers to implement these technologies. The availability of a qualified labor force has been a concern for some time. As the U.S. economy moves toward newer technology in the workplace, a

corresponding need for an increase in worker skills is creating worker shortages in many key industries, such as computer-based manufacturing and other computer-related enterprises.

Previous workforce literature articulates a consistent and positive relationship between economic development and workforce availability. Many authors emphasize that in today's technologically advanced and global economies, an educated workforce—both trained for jobs and adaptable to new technologies and workplace changes—is essential for keeping and attracting businesses. A region that can demonstrate that its workforce is motivated, skilled, and adaptable will have the upper hand in the competition for new industry.

With the cost of training employees rising, employers increasingly rely on public and private educational systems to help its workforce evolve. Some companies are taking a greater role in the edu-

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Figure 1

Study area

The study area included the Port Cities of Duluth and Superior, the Rural Range counties of northeast Minnesota, plus Douglas County, Wisconsin.

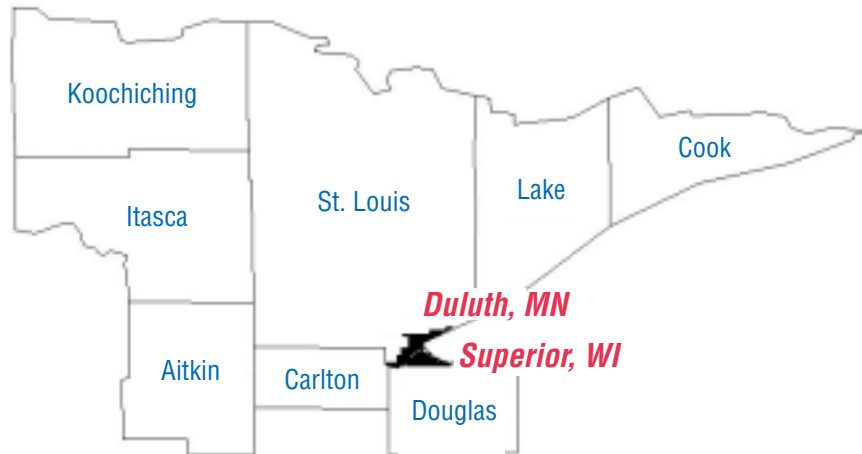


Table 1

General economic view of Northeast Minnesota and Northwest Wisconsin region

Northeast Minnesota and northwest Wisconsin covers counties that span 20,400 square miles

County	Population, 1999, est.	Employees, 1998	Total annual payroll, 1998
		<i>Number</i>	<i>\$1,000</i>
Rural Range:			
Northern St. Louis	87,733	46,638	1,317,690
Aitkin	14,293	2,887	53,852
Carlton	31,492	7,964	229,365
Cook	4,772	1,842	33,694
Itasca	44,154	13,334	321,916
Koochiching	14,895	4,949	118,498
Lake	10,765	3,002	70,725
Port Cities:			
Southern St. Louis	109,481	72,303	1,884,580
Douglas, WI	42,967	12,759	277,657

Source: U.S. Census Bureau

cation of the workforce by providing grants and scholarships for vocational training, making company managers available to teach classes, and getting involved in curriculum change.

The Firm Survey

During 1998, the University of Minnesota, Duluth's (UMD) Bureau of Business and Economic Research (BBER) conducted a workforce assessment in northeast Minnesota

and northwest Wisconsin. This assessment was based on a survey of both regional firms and households. The firm survey offered the perspectives on skilled workforce issues from a sample of firms of all sizes. It determined the need for high-skilled/technical workers by firms in this region and assessed the reliance of these firms on the educational system to develop, educate, and train their workforce.

Northeast Minnesota and northwest Wisconsin (fig. 1) covers 8 counties that span over 20,400 square miles, with a population of 356,000 and a workforce of almost 150,000 (table 1). There are over 11,000 firms in the region, with employment and wages especially heavy in services, government, and retail (table 2).

Rural Range Versus Port Cities Firms

Duluth and Superior constitute portions of two counties, St. Louis in Minnesota and Douglas in Wisconsin. St. Louis County is quite large, beginning at the tip of Lake Superior and ending over 150 miles north at the Canadian border. Duluth and Superior are twin cities that represent the urban portion of the eight-county region. The remainder of the region contains relatively small cities, such as Hibbing, Grand Rapids, and Cloquet, all with populations of less than 25,000.

Most of the region outside the urban core depends on natural resources for its economic well-being. Iron ore mining, timber operations, pulp and paper plants, and transportation are the major industries in the rural area. Durable goods manufacturing, much of it related to the resource industries, is also seen in the rural part.

Table 2

Annual employment, wages, and number of firms in northeast Minnesota and northwest Wisconsin, 1997

Services, retail trade, and governments account for two-thirds of jobs in the region

Industry	Firms	Annual employment	Total annual wages
		<i>Number</i>	<i>\$1,000</i>
Total - All industries	11,102	148,382	3,684,753
Agriculture, forestry, and fishing		614	10,113
Mining		6,098	297,547
Construction		5,861	197,065
Manufacturing		15,564	530,580
Transportation, communication, and utilities		7,555	259,755
Wholesale trade		5,284	162,823
Retail trade		31,870	405,066
Finance, insurance, and real estate (FIRE)		4,579	121,684
Services		41,080	861,984
Government		29,862	837,981

Source: Minnesota Department of Economic Security and Wisconsin Department of Workforce Development, Bureau of Workforce Information.

The urban area offers various services to tourists, transportation such as Great Lakes shipping and air, education, medical services, pulp and paper operations, and limited aircraft manufacturing and repair. The water transportation industry ships iron ore, western coal, and agricultural commodities across the Great Lakes and throughout the world.

Most of the rural and urban industries depend on natural resources, either directly through mining and timber operations or indirectly through shipping and secondary manufacturing. The region's population is falling, both in the rural areas and in the urban core. Both rural and urban economies have been relatively stagnant over the past several years, although unemployment has been quite low recently, as in the rest of the United States.

Overall, firms in both rural and urban counties are more similar in their workforce requirements than they are different, relying on relatively traditional skills. Where differences do exist, they are generally small.

Sampled firms in the Port Cities were more likely to have job openings for skilled and technical workers in 1998 than were Range firms (59 percent to 44 percent). However, the two areas were not significantly different in the share of firms indicating they had difficulty finding skilled workers (table 3). Approximately half (49 percent) of those who had skilled openings reported difficulty finding those workers—a quarter (24 percent) of all sampled firms.

For the Rural Range, the skills firms most frequently cited as difficult to find included (ranked by number of times mentioned) medical specialties (32), mechanical/

machinists (18), computer related (11), managers/supervisors (11), teachers (8), cooks (6), and engineers (6). Few firms listed the same skill or job as hard to find.

For the Port Cities, the more elusive skills included medical (16), service personnel (13), mechanical/machinists (11), financial (7), and computer related (7). Again, firms appear to have experienced shortages of different skills. Apart from medical and, to some extent, mechanical skills, most of the skills listed as difficult for firms to attract do not fit the image of highly technical or esoteric skills. In fact, based on a classification method used by the Minnesota Department of Economic Security, only about 9 percent of the occupations listed as difficult to fill by the respondent firms are in the high-tech category.

Skill training approaches.

About three-quarters (73 percent) of both Port Cities and Rural Range firms had on-the-job training, and most were somewhat or very satisfied with it (table 4). Satisfaction with this approach was significantly higher for Range firms than for Port Cities firms.

Nearly half of the firms (45 percent) provided other types of training. Retraining existing employees was more likely among Range firms (72 percent) than among Port Cities firms (50 percent); nearly all that used this approach were somewhat or very satisfied with it (98 percent). Over half of all firms provided formal job training for new employees (52 percent), with almost universal satisfaction (table 4). Fewer (45 percent) used tuition reimbursement of employee training expenses.

Very few firms reported using public or private school/provider training contracts. Seven percent used public sources, significantly

Table 3

Hiring and training a skilled workforce, winter 1998

Rural and urban counties were not significantly different in terms of the percent of firms indicating they had difficulty finding skilled workers

Item	Rural Range		Port Cities		Total		Statistical significance
	Percent (Number of firms)						
Had job openings for skilled/technical workers in past year	44	(201)	59	(111)	49	(312)	*
Had difficulty finding needed special/technical skills							
Among those firms that had skilled job openings in past year	53	(89)	42	(65)	49	(154)	ns
Among all firms surveyed	23	(201)	25	(111)	24	(312)	--

Note: Differences between areas that are marked "***" are statistically significant at the .05 level using either a chi square or an exact test (ns is used for not statistically significant at the .05 level).

Number in parentheses is the number of cases that is the base of the percentage. Numbers vary depending on item nonresponse.

Source: University of Minnesota, Duluth, Bureau of Business and Economic Research, 1999

more in the Port Cities (14 percent). Sixty percent using this approach were somewhat or very satisfied with it. Four percent of firms used private school/provider contracts and all of these indicated satisfaction with the approach.

Other skill training approaches were indicated by about a third of the firms in both areas and, among users, all indicated satisfaction. Again, differences are not statistically significant. Both areas listed seminars, apprenticeship or mentoring, safety training, and in-service training. Port Cities respondents listed computer training more than did Range respondents. Range respondents listed training by independent industry or association groups or manufacturers, which is not mentioned by Port Cities firms. Otherwise, the two lists do not include radically new approaches to skills training.

Job Openings and Training Differ by Firm Size

The sample size was sufficient to provide a comparison of responses broken down by size of firm. In approximate thirds, firms were divided into three size categories for firms in the northeast Minnesota/northwest Wisconsin area: small (1-25 employees), medium-sized (26-135 employees), and large firms (136 or more employees). Smaller firms are more likely to be in the Range area (66 percent) than are larger firms (29 percent).

Nearly half of the small firms (45 percent) had job openings for skilled or technical workers in the previous year, and this increases significantly as firm size grows (table 5). Three-quarters of medium-sized firms and 83 percent of large firms sought skilled workers in the previous year. Differences among firms in difficulty of finding skilled workers were not significant. Overall, 49 percent of firms had difficulty.

Skills listed as difficult to find.

Larger firms appear to have difficulty finding medical personnel. Small and medium-sized firms, but not larger firms, list cooks as hard to find. Administrative jobs appear to be listed more often by medium-sized than by smaller or larger firms. Less than 10 percent of the occupations listed by the respondent firms are high-tech occupations, according to a classification method used by the Minnesota Department of Economic Security.

Skill training approaches.

Medium-sized and smaller firms are more likely to use on-the-job training (84 and 73 percent) than are larger firms (61 percent). There are no significant differences by firm size in satisfaction with this approach (table 6). Among the approaches used that are significantly different by firm size is use of formal job training for new employees. The smaller and medium-sized firms are more likely to do this (50 percent and 65

percent) than are larger firms. Satisfaction with this approach also does not differ by firm size (table 6).

Larger firms are more likely to use approaches other than on-the-job training (83 percent). Twenty-six percent, versus just 4 percent of smaller firms, used public school or public provider training contracts. Satisfaction with this approach corresponded with use. Larger firms are also more likely to use private school or private provider training contracts, though satisfaction is not significantly different.

Firms of different sizes do not differ significantly in using tuition reimbursement. However, larger firms are less satisfied than smaller firms with this approach (table 6).

Some Household Survey Results

The household survey did not show much difference between rural workforce availability and availability in the Port Cities. Firms were looking for traditional (as opposed to high-tech) skills and households were offering traditional skills.

A stratified random sample of households provided information regarding the supply side of the market (Center for Economic Development, 1998b). Information was collected on an individual's willingness and ability to work, as well as job and work skills offered, satisfaction with current job, and possible underemployment.

About half of the respondents said they had some form of professional certificate or license. Fifty percent said they had more than one skill to offer employers.

Table 4

Type of workforce training used and satisfaction with the training, winter 1998

For the most part, regional differences are not statistically significant, except for satisfaction with on-the-job training differences, retraining of existing employees, public school/provider training, and tuition reimbursement satisfaction

Item	Rural Range	Port Cities	Total	Statistical significance
<i>Percent (Number of firms)</i>				
Types of training offered:				
On-the-job training	72 (201)	76 (111)	73 (312)	ns
Percent somewhat or very satisfied	99 (144)	86 (81)	94 (225)	*
Firms providing other types of training (total)	45 (201)	46 (112)	45 (313)	ns
Formal job training for new employees	52 (85)	52 (50)	52 (135)	ns
Percent somewhat or very satisfied	100 (44)	96 (26)	99 (70)	ns
Retraining of existing employees	72 (90)	50 (50)	64 (140)	*
Percent somewhat or very satisfied	100 (65)	92 (26)	98 (91)	ns
Public school/provider training contracts	3 (90)	14 (50)	7 (140)	*
Percent somewhat or very satisfied	67 (3)	57 (7)	60 (10)	ns
Private school/provider training contracts	3 (90)	6 (49)	4 (139)	ns
Percent somewhat or very satisfied	100 (3)	100 (3)	100 (6)	ns
Tuition reimbursement	44 (90)	45 (51)	45 (141)	ns
Percent somewhat or very satisfied	100 (39)	91 (23)	97 (62)	*
Other training for skilled workers	32 (90)	40 (50)	35 (140)	ns
Percent somewhat or very satisfied	100 (29)	100 (21)	100 (50)	ns

¹ Differences between regions that are marked "*" are statistically significant at the .05 level using either a chi square or an exact test (ns is used for not statistically significant at the .05 level).

Source: University of Minnesota, Duluth, Bureau of Business and Economic Research, 1999.

Table 5

Hiring and training a skilled workforce, winter 1998

Less than half of the small firms had job openings for skilled or technical workers in the previous year versus 80 percent of larger firms

Item	Small (1-25)	Medium (26-135)	Larger (136+)	Statistical significance ¹
<i>Percent</i>				
Had job openings for skilled/ technical workers in previous year	45	78	83	*
Had difficulty finding needed special/technical skills				
Among firms who had skilled job openings	46	63	52	ns
Among all firms surveyed	21	49	43	—

¹ Differences between the three firm sizes that are marked “*” are statistically significant at the .05 level using either a chi square or an exact test (ns is used for not statistically significant at the .05 level).

Source: University of Minnesota Duluth, Bureau of Business and Economic Research, 1999.

Twenty-eight percent of the household respondents were engaged in training to enhance job skills, much of this at their own expense. Seventy-nine percent had completed 12 years of education. This compares with 75 percent nationally (according to the 1990 Census of Population). Fifteen percent of the study region's population had one or more college/associate degrees, compared with 20 percent nationwide.

Fifty-eight percent of those currently working were interested in switching jobs if an adequate alternative were available. A similar number said that their current skills were underutilized in their current employment, a sign of underemployment in the region.

The major difference between the Port Cities and the Rural Range was in a willingness to commute. The rural respondent was willing to commute greater distances for a suitable job than was the urban respondent. The wage levels in the two regions were comparable at an average wage of close to \$7 per hour. The willingness to work longer hours and at more jobs was also similar between the two regions.

Putting Regional Survey Information to Use

Information is the key to choosing and pursuing development options, and data related to workforce needs and labor availability are becoming increasingly important in industrial targeting.

Making such data available to developers and potential locating firms can be done in several ways. Regional data can be tailored to specific firm needs, or posted generically to the Web in this instance. In addition, members of the research team have been available for direct contact with potential locating firms and have made special statistical runs to meet their particular needs.

It is not clear to what extent the Minnesota/Wisconsin study actually resulted in attracting a firm. Many other factors go into such a decision. However, feedback from firm locating panels has been quite positive regarding the detail contained in the survey data offered.

The data can also be used as a baseline for forecasting future workforce needs in the region. Occupation forecasts are available from the Minnesota Department of Economic Security. However, these data are available only for multi-county regions. A future project will attempt to break the regionwide forecasts into county estimates.

The baseline from the surveys plus the eventual forecasts are useful in planning education and training needs for the region. With such information, community colleges, universities and high schools can better tailor their programs to regional workforce needs. The regional firm survey data show that few firms contract directly with local educational providers for their training needs. Better information may help to bring the local educational community and industries together for a better trained and more skilled workforce.

Conclusions

National studies have repeatedly pointed to workforce abilities, training, and education as major determinants of regional economic development potential. Generally

overlooked in these discussions is the need to document workforce needs and training in a particular region. Our attempt at determining workforce characteristics in north-east Minnesota and northwest

Wisconsin led to some surprising results.

While earlier studies warn of U.S. business firms' inability to find individuals with high-level skills, our analysis suggests the problem is not universal. Our survey in northeast Minnesota and northwest Wisconsin found that only 25 percent of the respondent firms experience trouble in this regard. Results were similar for both rural and urban counties. Further, the skills required in this region are not particularly high-tech. Also, in contrast to the results and recommendations in the national literature, very few firms reported using public or private education providers in their skill training activities.

The most obvious public policy implications of this analysis involve regional development efforts. Additional effort is needed to (1) better match regional skills to regional workforce needs, including education and training program development; (2) develop skills that can be used by prospective firms as regions attempt to diversify their economies; and (3) continuously update the regional workforce data bases so that future policies are based on the best current information available. **RA**

Table 6

Types of workforce training used

Firm size demonstrates significant differences in the type of training offered and the provider used

Types of training	Small firms (1-25)	Medium- size firms (26-135)	Larger firms (136+)	Statistical significance
	<i>Percent</i>			
On-the-job-training	73	84	61	*
Percent somewhat or very satisfied	94	95	92	ns
Provide other types of training	41	77	83	*
Formal job training for new employees	50	65	40	*
Percent somewhat or very satisfied	100	93	96	ns
Retraining of existing employees	65	63	65	ns
Percent somewhat or very satisfied	100	98	84	*
Public school/provider training contracts	4	21	26	*
Percent somewhat or very satisfied	50	87	100	*
Private school/provider training contracts	2	10	19	*
Percent somewhat or very satisfied	100	88	100	ns
Tuition reimbursement	42	52	62	ns
Percent somewhat or very satisfied	100	91	80	*
Other training for skilled workers	34	37	47	ns
Percent somewhat or very satisfied	100	100	100	ns

¹Differences between the three firm sizes that are marked "*" are statistically significant at the .05 level using either a chi square or an exact test (ns is used for not statistically significant the .05 level).

Source: University of Minnesota Duluth, Bureau of Business and Economic Research, 1999.

Firm Survey Methodology

The sampling frame for the study was all current business entities located in the seven-county northeastern Minnesota region plus Douglas County, Wisconsin (the county containing Superior, one of the Twin Port cities). A list of all firms, thought to be accurate through summer 1997, provided basic information on the Minnesota firms. Ultimately, a list of Douglas County firms thought to be complete and up-to-date was reviewed. The Wisconsin list did not include information that could be used to verify firm size. Altogether, 11,102 firms were listed (9,302 in Minnesota and 1,800 in Wisconsin). These ranged from firms with 1 employee/owner to those with over 2,000 employees.

A disproportional, stratified random sample of firms (all sizes) was selected. Stratification was based on county and on reported firm size (except for Douglas County where firm size was not provided). Sample size was selected to minimize costs and provide for reasonably accurate estimates of responses by two grouped regions: the urban Twin Ports area (Superior, Wisconsin, plus the zip codes of southern St. Louis County and Duluth), and the Rural Range area (including other Minnesota counties and northern St. Louis County). A sample size of 313 was achieved with a 96-percent response rate. As expected, a number of firms had gone out of business or relocated since the list was compiled.

A 34-question interview schedule (plus some questions about the experience of the interviewee) was developed and pretested. This included both closed and open-ended items. Interviews were held with the owner, presidents, or person most knowledgeable about the firm's hiring and training needs and practices. Items were asked about the firm's experience in hiring or training skilled labor, about their training programs, how job searches were conducted, and their estimate of problems in finding an appropriate workforce in the future. Fieldwork and data entry were done by the Minnesota Center for Survey Research at the University of Minnesota. Interviews were conducted in February and March 1998.

The data were weighted for analysis. Two weighting schemes were used. One reflects the overall sample design. The other provides for comparisons by firm size where sample results are used to estimate the missing Douglas County firm size data. The overall weighting scheme is used in comparisons of the Range and Port Cities and in the overall totals. The other weighting scheme is used in tables comparing firms by size (but no total percentages from this weighting scheme are used and thus there is no overall total in these tables).

For Further Reading . . .

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